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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,296	06/10/2005	Minehiro Tonosaki	270749US6PCT	3462

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EXAMINER	
LEO, LEONARD R	
ART UNIT	PAPER NUMBER
3785	

NOTIFICATION DATE	DELIVERY MODE
06/20/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/538,296	TONOSAKI ET AL.	
	Examiner	Art Unit	
	LEONARD LEO	3785	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 April 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12,13 and 16-19* is/are pending in the application.

4a) Of the above claim(s) *13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12 and 16-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 14, 2011 has been entered.

Claims 12-13 and 16-19 are pending, and claim 13 remains withdrawn from further consideration.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kirshberg et al in view of Steele et al or Mochida et al, further in view of Sugito.

Kirshberg et al (Figure 3) discloses a heat transport device comprising:

a first base plate 22 including a liquid suction and retention unit in the forms of grooves 24; a body with protrusions formed by grooves 26;

a second base plate 21 including a face with a first concavity 10, a second concavity 12, a first ditch 14 forming a channel between the first and second concavities 10, 12, and a second

ditch 16 forming a channel with a closed end (Figures 2 and 4A, marked up, below) between the second concavity 12 and the liquid suction and retention unit;

but does not disclose resin bonding the base plates, the first base plate covered with a protective film, nor a third concavity on the second base plate.

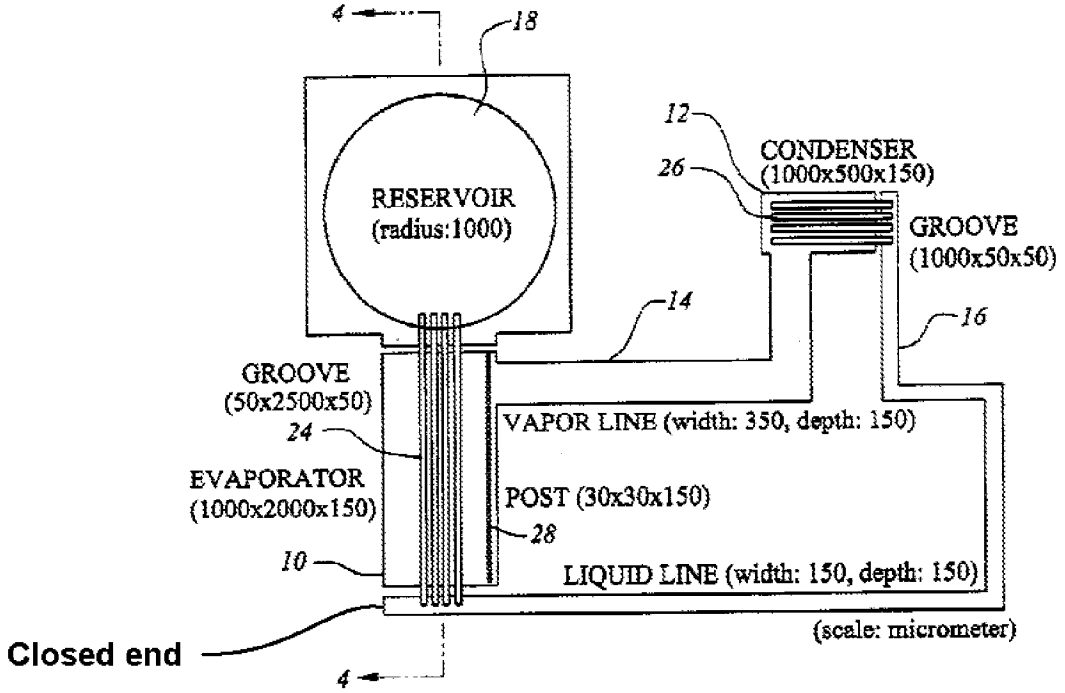

FIG. 2

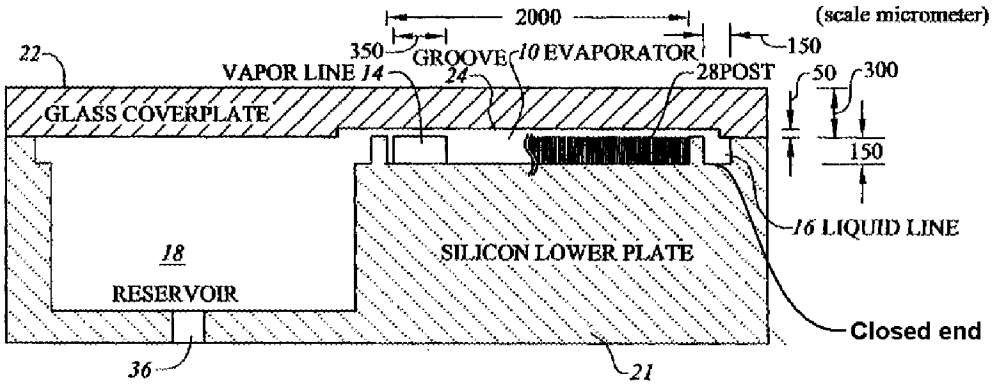

FIG. 4A

Steele et al discloses a heat exchanger comprising a heat transfer surface and a protective coating of silicate for the purpose of providing microbial growth inhibition and improving wetting and wicking properties to improve heat transfer (abstract, column 3, lines 35-40 and 55-60).

Uchida et al discloses a heat exchanger comprising a heat transfer surface and a protective coating of silicon dioxide for the purpose of improving corrosion resistance and enhancing wetting and wicking properties to improve heat transfer (column 7, lines 7-11).

Sugito (Figures 1-4) discloses a heat transport device comprising a liquefaction chamber 4 and a stack of base plates 9A-9E defining a combined vaporization chamber/gas-phase working fluid channel 2b and a liquid-phase working fluid channel 2c separated by a concavity 5a for the purpose of improving fluid circulation and heat transfer by preventing the transfer of heat between the gas and liquid working fluid channels (column 4, line 64 to column 5, line 12).

Since Kirshberg et al and Steele et al or Uchida et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Steele et al or Uchida et al would have been recognized in the pertinent art of Kirshberg et al.

Since Kirshberg et al and Sugito are both from the same field of endeavor and/or analogous art, the purpose disclosed by Sugito would have been recognized in the pertinent art of Kirshberg et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Kirshberg et al a protective coating of silicon dioxide or silicate for the purpose of improving wetting and wicking properties to improve heat transfer and providing microbial growth inhibition or improving corrosion resistance as recognized by Steele

et al or Uchida et al, and employ in Kirshberg et al a concavity in one of the base plates for the purpose of improving fluid circulation and heat transfer by preventing the transfer of heat between the gas and liquid working fluid channels as recognized by Sugito. Further with respect to the modification in view of Steele et al or Uchida et al, it would have been obvious to one of ordinary skill in the art to apply a known technique to a known device ready for improvement to yield predictable results. *KSR Int'l Co. v. Teleflex Inc.,* 82 USPQ2d 1385, 1396 (2007).

The Examiner takes Official Notice of thermosetting plastics and resins for its use in the bonding art and the selection of any known equivalent to bond two structures together would be within the level of ordinary skill in the art. Furthermore, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claim 16, Kirshberg et al discloses a fourth concavity 18 for storing liquid for the liquid suction and retention unit.

Regarding claim 18, Figure 4A discloses the first base plate 22 is disposed above the second base plate 21.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kirshberg et al in view of Steele et al or Mochida et al, further in view of Sugito as applied to claims 12, 16 and 18 above, and further in view of Newton et al.

The combined teachings of Kirshberg et al, Steele et al or Mochida et al, and Sugito lacks a fifth concavity.

Newton et al (Figures 18A-B) discloses a heat transport device comprising a first base plate 53, and a second base plate 54 having a liquefaction chamber 42 and vaporization chamber 40 connected by a gas-phase working fluid channel 47 and a liquid-phase working fluid channel 48, a cavity 50 communicating with the vaporization chamber 40, and a concavity 92 (structurally similar to concavity 50) communicating with liquefaction chamber 42 for the purpose of providing a working fluid reservoir.

Since Kirshberg et al and Newton et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Newton et al would have been recognized in the pertinent art of Kirshberg et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Kirshberg et al a cavity communicating with the liquefaction chamber for the purpose of providing a working fluid reservoir as recognized by Newton et al.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kirshberg et al in view of Steele et al or Mochida et al, further in view of Sugito as applied to claims 12, 16 and 18 above, and further in view of Snyder et al.

The combined teachings of Kirshberg et al, Steele et al or Mochida et al, and Sugito lacks openings in the first base plate.

Snyder et al discloses a heat transport device comprising opposed base plates (Figure 3) having a liquefaction chamber 26 and vaporization chamber 25 connected by working fluid

channels 27, and openings receiving body 36 and liquid suction and retention unit 28 of higher thermal conductivity than the base plates for the purpose of improving heat transfer.

Since Kirshberg et al and Snyder et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Snyder et al would have been recognized in the pertinent art of Kirshberg et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Kirshberg et al openings receiving the body and liquid suction and retention unit of higher thermal conductivity than the base plates for the purpose of improving heat transfer as recognized by Snyder et al.

Response to Arguments

The rejections in view of Nelson et al are withdrawn in light of the claim amendments.

Applicants' arguments have been considered but are moot in view of the new ground(s) of rejection.

No further comments are deemed necessary at this time.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Swann can be reached on (571) 272-7075. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/ Leonard R. Leo /
PRIMARY EXAMINER
ART UNIT 3785

June 16, 2011